Ambient Level Controller

Installation and Use Manual

Issue 1, October 1999

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Model: **LUALC**
PEC Code: 5335-621
COM Code: 408184273
Select Code: 701-000-131

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Notice

Every effort was made to ensure that the information in this guide was complete and accurate at the time of printing. However, information is subject to change.

FCC Statement (Part 15) - Radio Frequency Interference

The Ambient Level Controller generates and uses radio frequency energy and, if not installed and used in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. Testing is being conducted for compliance with the limits for a Class B device in accordance with the specifications in Part 15 of the FCC Rules. This testing is designed to provide reasonable protection against such interference. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the Ambient Level Controller unit off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the radio or TV receiving antenna.
- Relocate the Ambient Level Controller unit with respect to the radio or TV receiver or vice-versa.
- Plug the Ambient Level Controller unit into a different outlet so that it and the radio or TV receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet, "How To Identify and Resolve Radio-TV Interference Problems," helpful. This booklet was prepared by the Federal Communications Commission (FCC) and is available from the U.S. Government Printing Office, Washington, DC 20402. Stock order No. 004-000-00345-4.

Important Safety Information

Always follow these basic safety precautions when installing and using the system:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. DO NOT block or cover the ventilation slots and openings. They prevent the product from overheating. DO NOT place the product in a separate enclosure or cabinet, unless proper ventilation is provided.
4. Never spill liquid on the product or drop objects into the ventilation slots and openings. Doing so may result in serious damage to the components.
5. Repair or service must be performed by a factory authorized repair facility.
6. The product is provided with a UL-CSA approved, 3-wire ground type plug. This is a safety feature. DO NOT defeat the safety purpose of the grounding type plug. DO NOT staple or otherwise attach the AC power supply cord to building surfaces.
7. DO NOT use the product near water or in a wet or damp place (such as a wet basement).
8. DO NOT use extension cords. The product must be installed within 6 feet of a grounded outlet receptacle.
9. DO NOT install telephone wiring during a lightning storm.
10. DO NOT install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
11. Never touch uninsulated wires or terminals, unless the line has been disconnected at the paging or controller interface.
12. Use caution when installing or modifying paging or control lines.

Support Information

Paging systems integrated with small phone systems such as Merlin Legend and Partner are supported by the National Service Assistance Center (NSAC). The main number for the NSAC is 800-628-2888. Paging systems integrated with large switches such as the DEFINITY G3 are supported by the Technical Service Center (TSC). The main number for the TSC is 800-242-2121.

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Overview

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- Allows automatic, manual or remote control of sound system levels.
- It has an SPL meter with over 50 dB range built in.
- The microphone can be placed up to 5000 feet from unit.
- Simplicity in set up and operation.
- Single rack space - 1 RU.
- Balanced 600 ohm inputs and outputs.
- Line input activated by a contact closure.
- Loop start TELCO input with priority over line input.
- Clock inputs or remote control connections.
- Relay outputs for emergency override or indicators.
- Line output and a contact closure to supervise downstream equipment.
- Internal microprocessor senses ambient noise via a microphone input, and adjusts the paging level accordingly.
- Rack or wall mount.
- UL listed power supply, FCC Part 15 approved.

Figure 1-1 shows a back view of the Ambient Level Controller (ALC) and Figure 1-2 shows a front view of the ALC. Figure 1-3 shows a block diagram of the ALC.

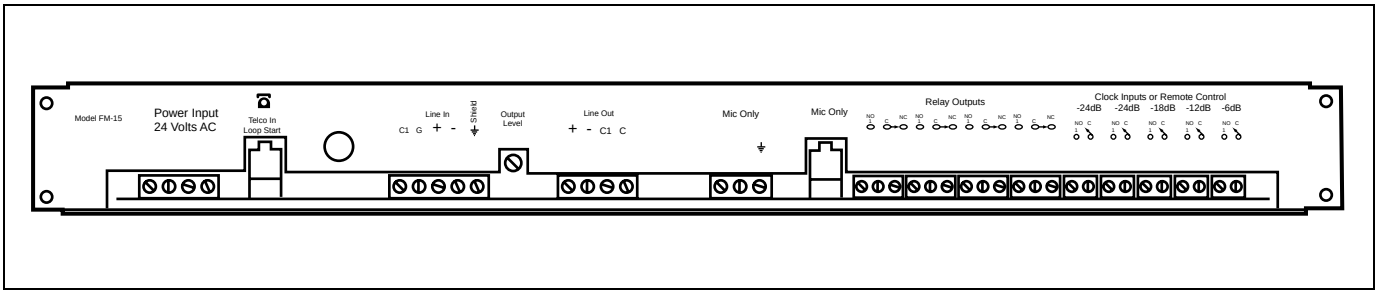

Figure 1-1. Back View

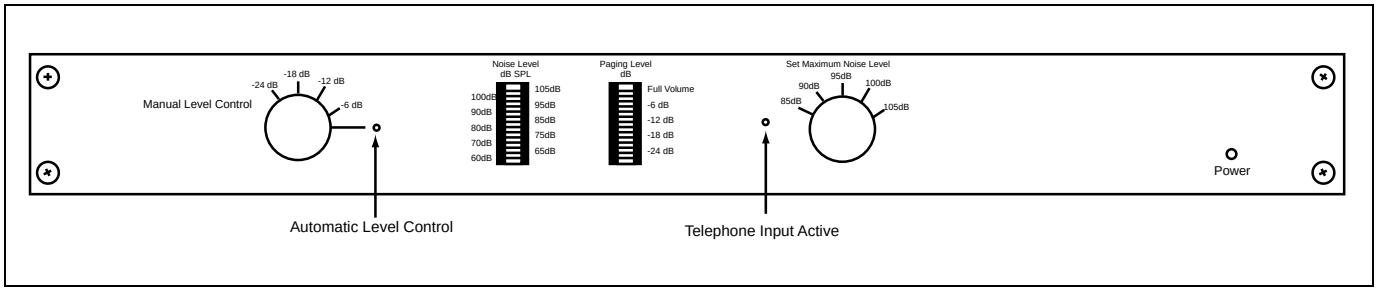

Figure 1-2. Front View

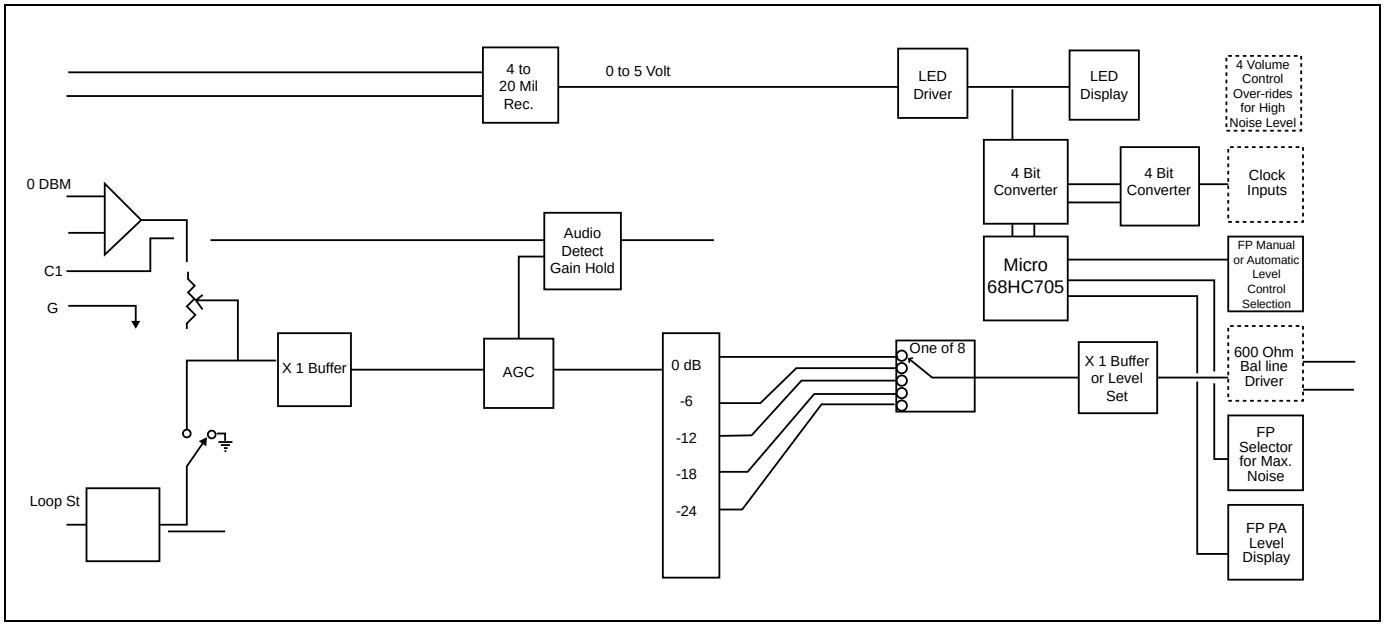

Figure 1-3. Ambient Level Controller Block Diagram

Specifications

Table 1-1 lists the specifications for the ALC.

Table 1-1. Specifications

Parameter	Working Limits
Power Source	24 Volts AC UL listed power supply
Maximum Power Consumption	60 Watts
Frequency Response	250 Hz to 15KHz +/- 2dB
Signal To Noise [dB ref.]	Better than -60 dB
Maximum Output Level	0 dB,-12 dB with jumper
Output Relay Trigger Points	0 dB and -6 dB gain reduction
Output Relay Contact Rating	1 amp
No. of Relay Contacts	4
Input Level Controls [internal]	5
Control requirements	DRY contact closure
Input Types	Line Telco, loop start
Output Types	Line [600 ohm]
Contact Closure On Output	Yes
Contact Closure Controlled Input	Yes
Front Panel Controls	Attenuation manual or automatic
Front Panel Indicators	Power Attenuation, automatic Telephone input active
REAR PANEL CONNECTORS	
Relays	Compression screw
Microphone	RJ11-6 or compression screw
Line In	Compression screw
Line Out	Compression screw
Telephone	RJ11-6
Relay Outputs	Compression screw
Clock Inputs	Compression screw
Power	Compression screw
Microphone Type	Electret, omnidirectional
Maximum Mic Line Length	5000 feet

Table 1-1. Specifications (Continued)

PHYSICAL	
Depth	8-3/4 inches
Width With Rack Ears	17 inches 19 inches
Height	1-3/4 inches
Weight	8 pounds
ENVIRONMENTAL	
Temperature Operating	+32° to +104°F (0 to 40°C)
Humidity	0 to 85% Noncondensing

Before You Start

Before installing your system, read and understand the safety instructions. Be sure you have all the necessary parts, tools, and test equipment, listed below. Check the shipping container for the following contents:

1. FM-15 Ambient Level Controller.
2. FM-14 Log Current Microphone.
3. Rack mounting ears.
4. Rack mounting hardware (4 Phillips head 12-24 screws, 8 Phillips head 6-32 screws).
5. RJ-11 cord.
6. Power supply.
7. Installation and User Manual.
8. Male RCA to wires cable.

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Operation

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Set up the FM-15 ALC as follows:

1. Set the **MANUAL LEVEL CONTROL** to automatic (Blue Knob) (see Figure 2-1). This allows the FM-15 ALC to calibrate itself.The automatic position will allow the FM-15 ALC to constantly change the paging level to compensate for the changes in noise level in the area being monitored.

2. Check the **SPL** meter (the Green LED) (see Figure 2-1) for maximum noise level. This is your high noise level reading.

3. Set the **MAXIMUM NOISE LEVEL** control (Red Knob) (see Figure 2-1) to the average high noise level. If you feel the room noise may actually be louder at some time, move the control up one click to the right (clockwise).

4. The **PAGING LEVEL** meter (the Red LED paragraph) (see Figure 2-1) indicates the paging level changes that are taking place with dual LEDS.

5. Calibration is complete.

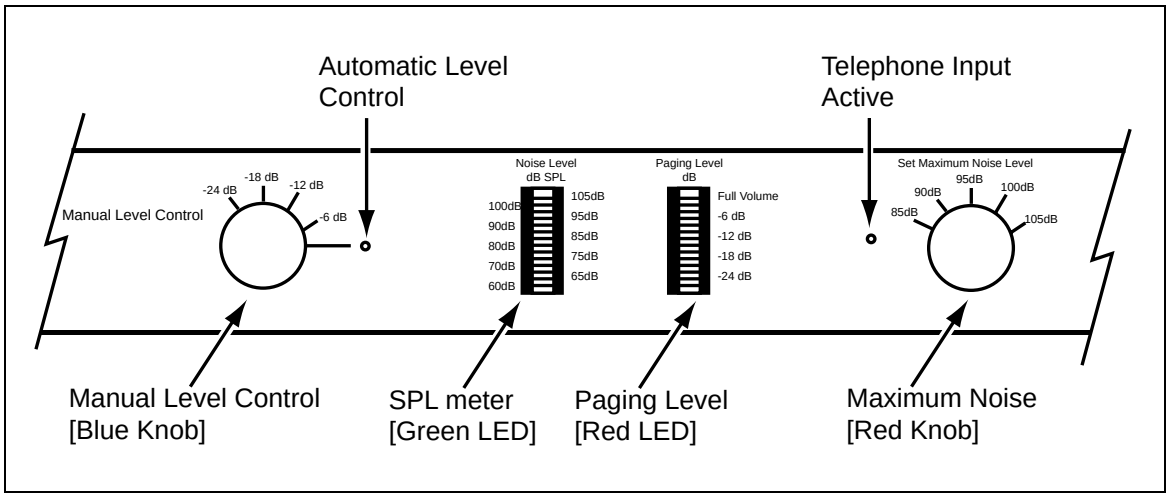

Figure 2-1. FM-15 ALC

The FM-15 ALC may be used without the FM-14 Log Current Microphone. In this mode, the FM-15 ALC becomes a leveler or limiter for manual control of the sound system. The SPL meter will not function but all other functions will work in the normal manner. The Manual Level Control on the front panel will set the level of the sound system (see Figure 2-1).

The Output Level Control (see Figure 2-2) is preset at the factory for a 0 dB maximum output level. The Enable Contacts (see Figure 2-2) on the Line Input terminal strip, when shorted with a DRY contact closure, will produce an isolated DRY contact closure on the C1 and C terminals of the Line Output terminal strip.

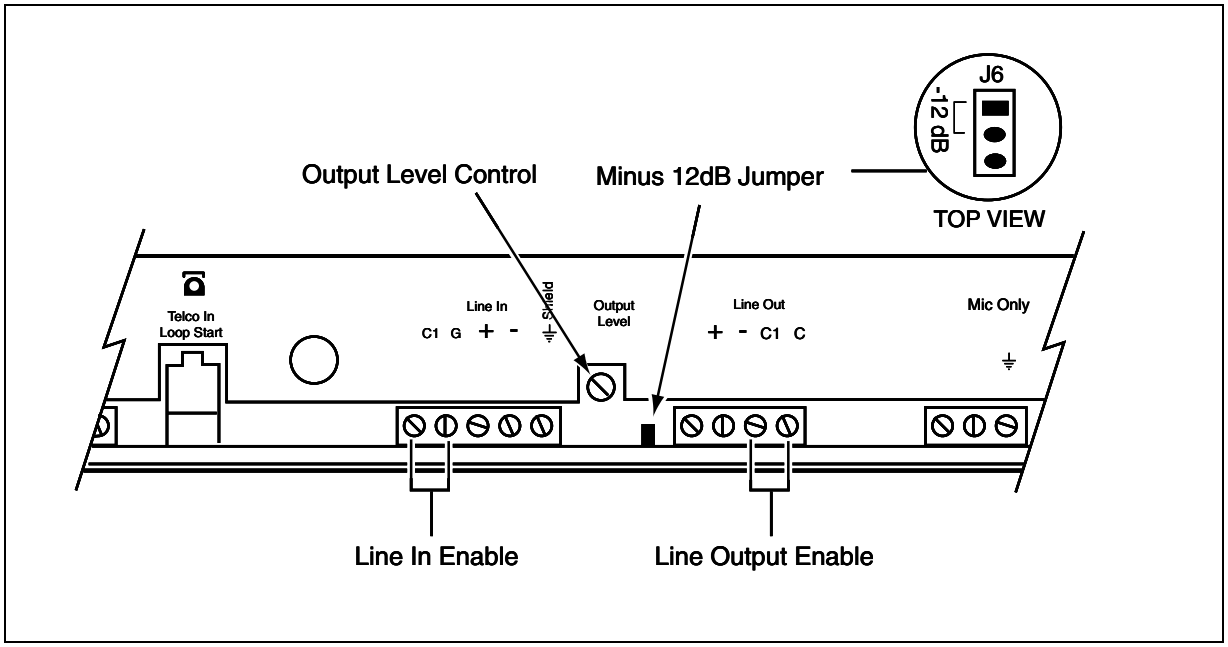

Figure 2-2. FM-15 ALC Rear View

FM-14 Log Current Microphone Hookup

The wire for the FM-14 Log Current Microphone does **not** have to be shielded. Use an RJ-11 connector at the microphone. When connecting to the FM-15 ALC use an RJ-11 connector or wire directly to the terminal strip marked **MIC ONLY** (see Figure 2-3).

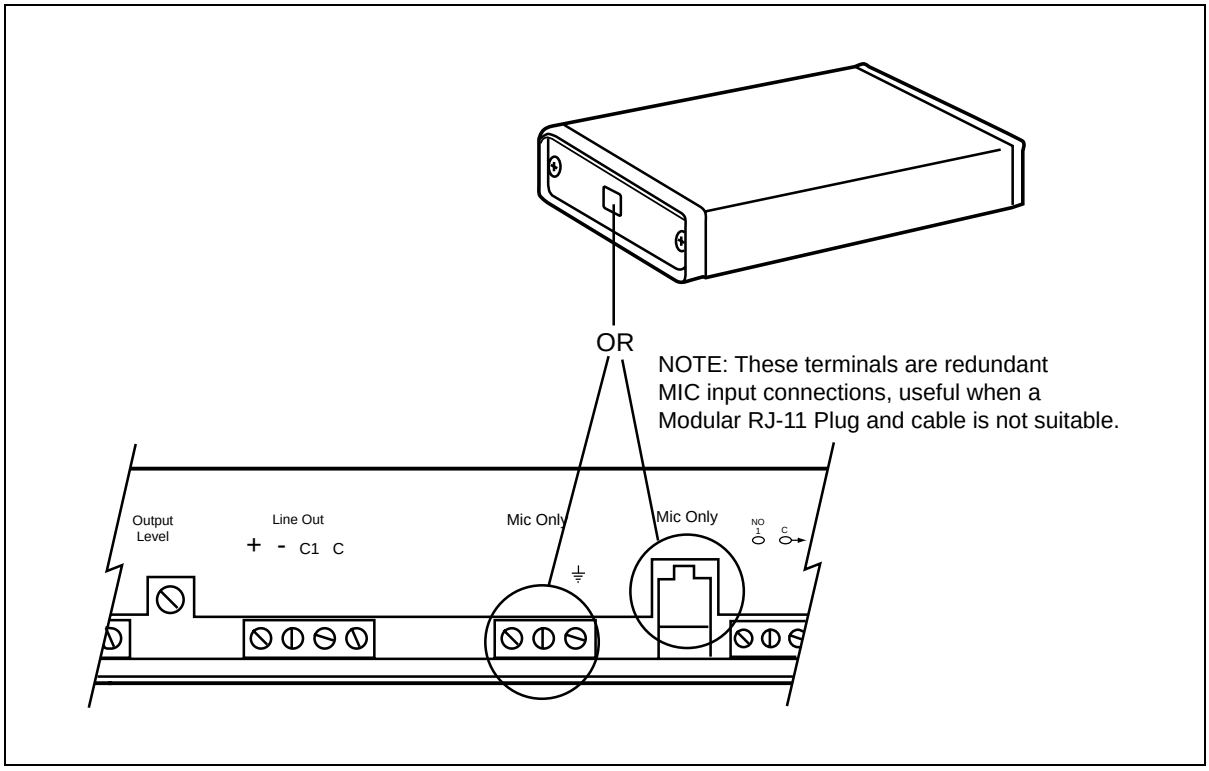

Figure 2-3. FM-14 Log Current Microphone

Installation

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Power Supply Hookup

Install the FM-15 ALC with the system to be controlled. Then install the FM-14 Log Current Microphone in the area to be controlled. Connect the power supply provided as marked on the PC board (BLACK-WHITE-RED-GREEN, from left to right) (see Figure 3-1).

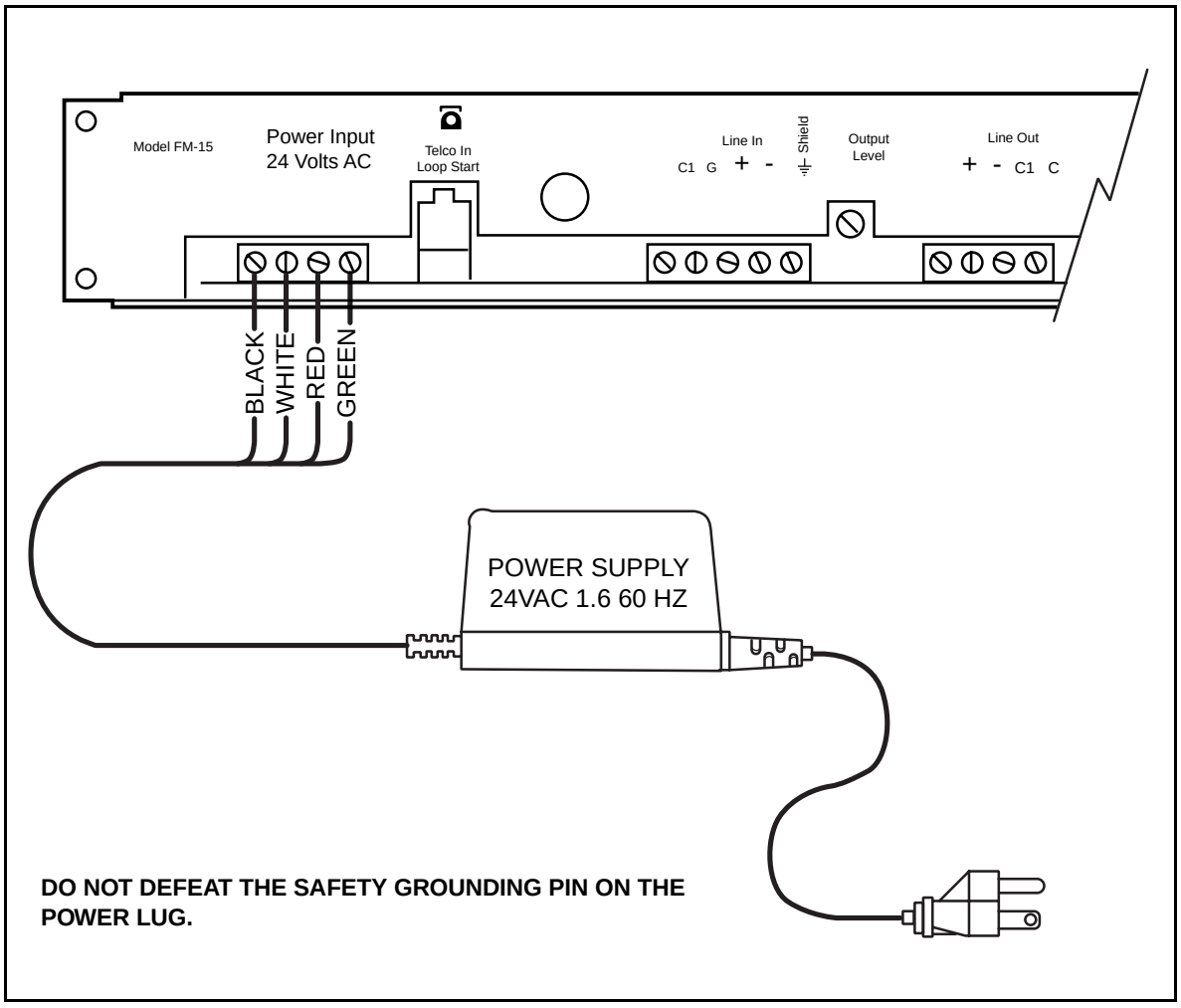

Figure 3-1. Power Supply Hookup

Mounting Detail

The rack ears mount in any of four directions (see Figure 3-2). This makes rack mounting or wall mounting possible. The power supply can be mounted in any convenient place.

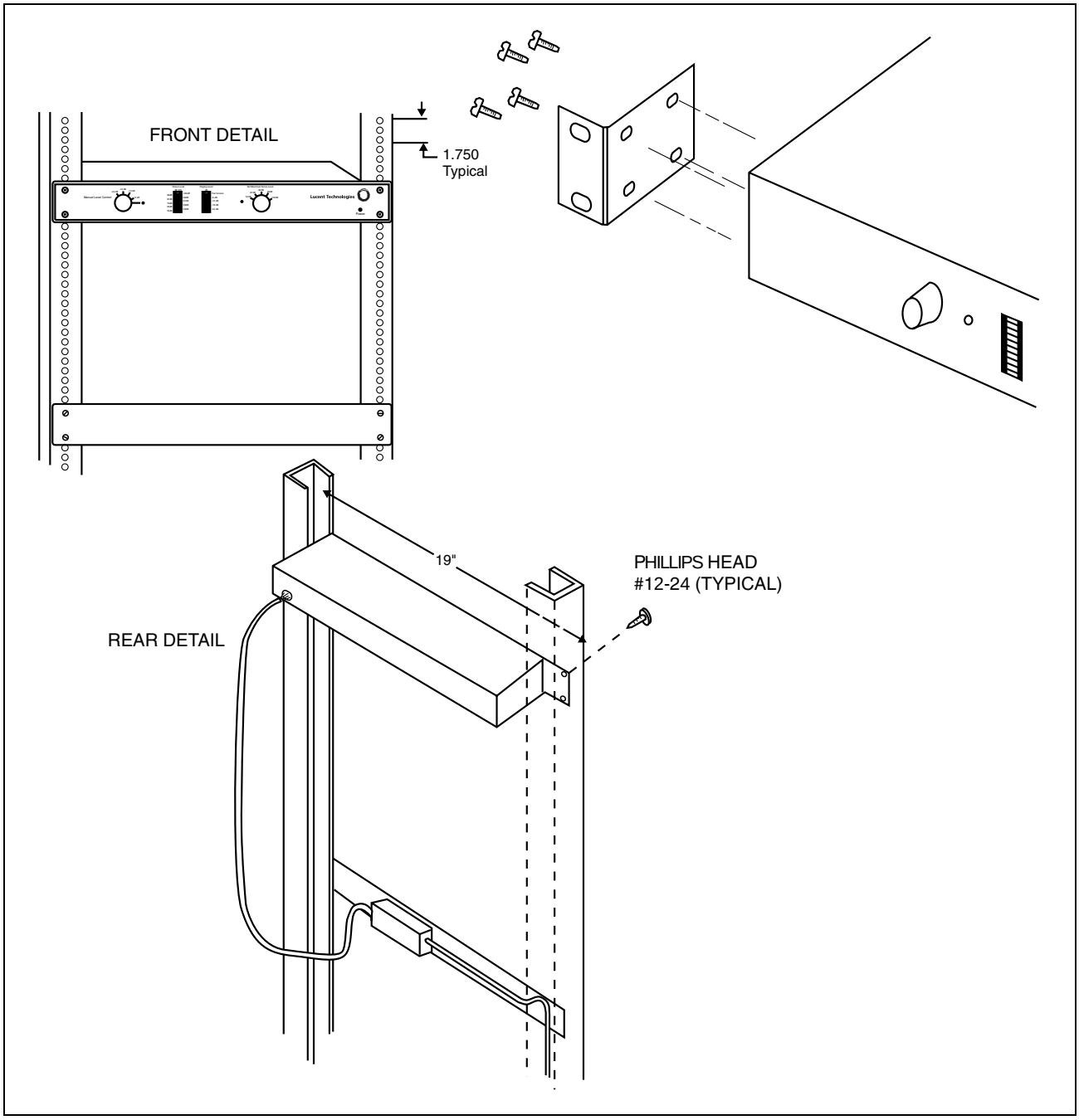

Figure 3-2. Rack Ears Mounting

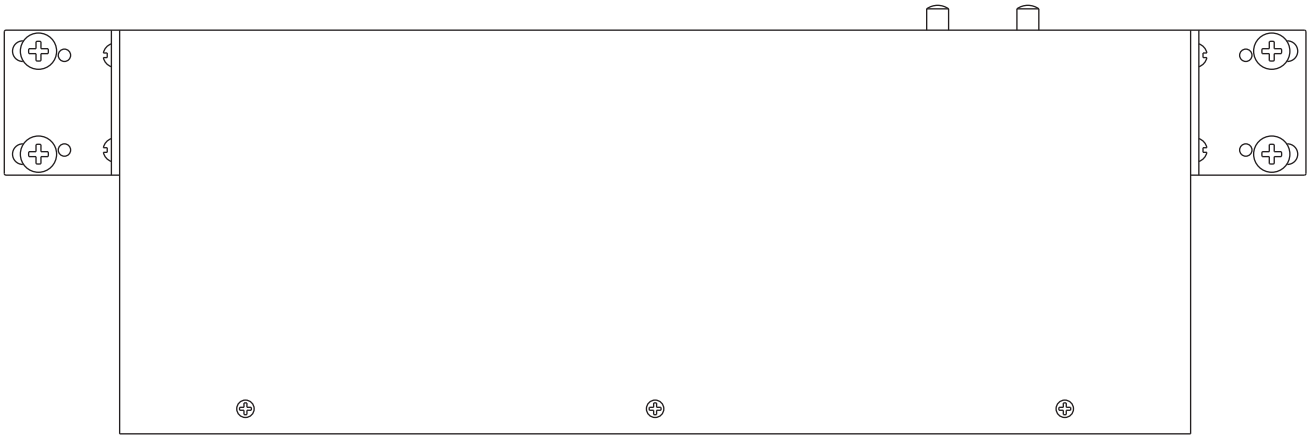

Figure 3-3. Wall Mounting

Ambient Level Controller Connection With A LUUPAM Universal Paging Access Module

The FM-15 ALC connects between the paging source (PBX, Key System or standard telephone, and the paging amplifier) (see Figure 3-3).

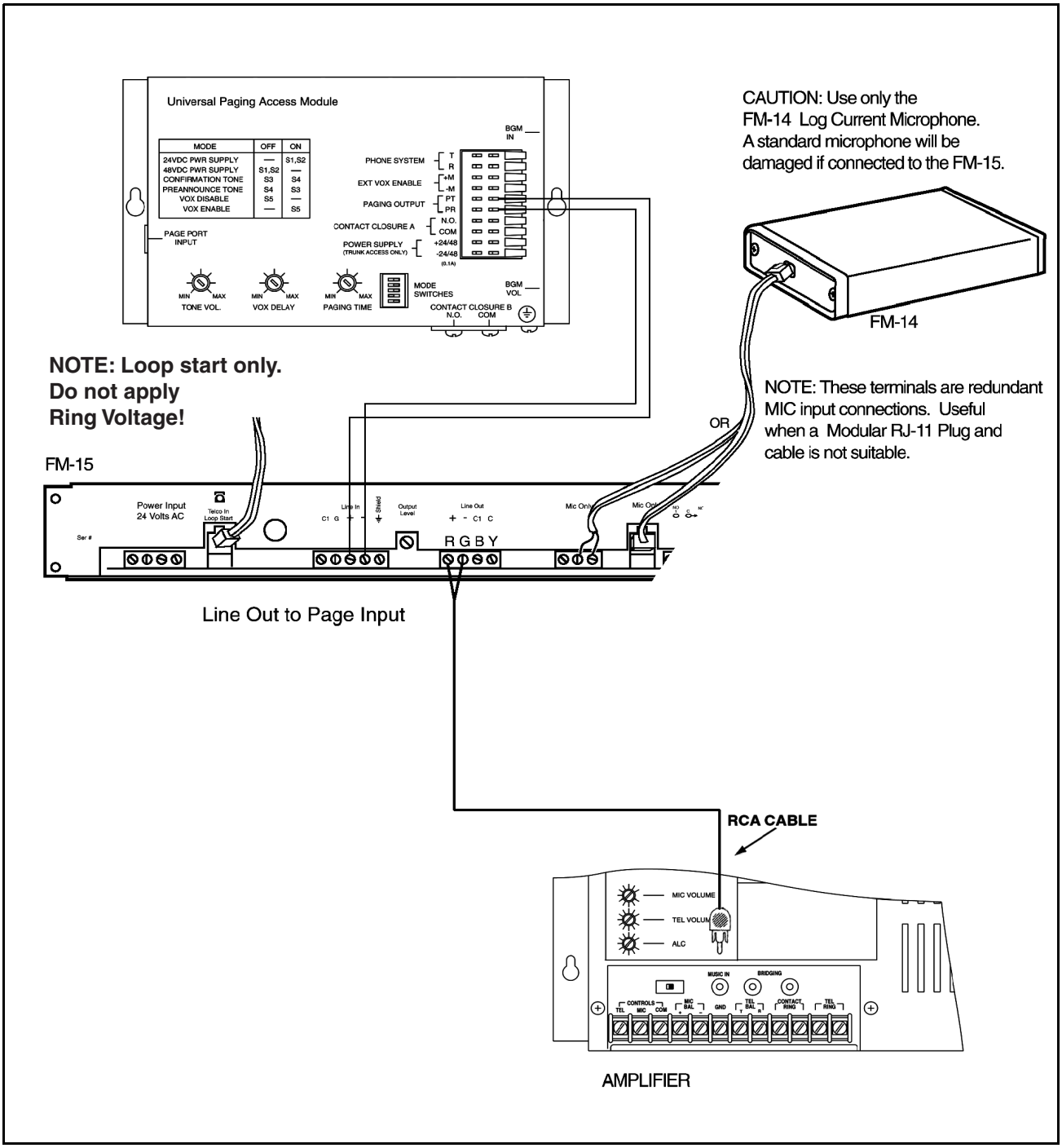

Figure 3-3. FM-15 ALC Connection to a LUUPAM Universal Paging Access Module

Note: The controller must be switching line level only

Multiple FM-15 ALCs may be used with a single controller so each zone has its own level correction (see Figure 3-4).

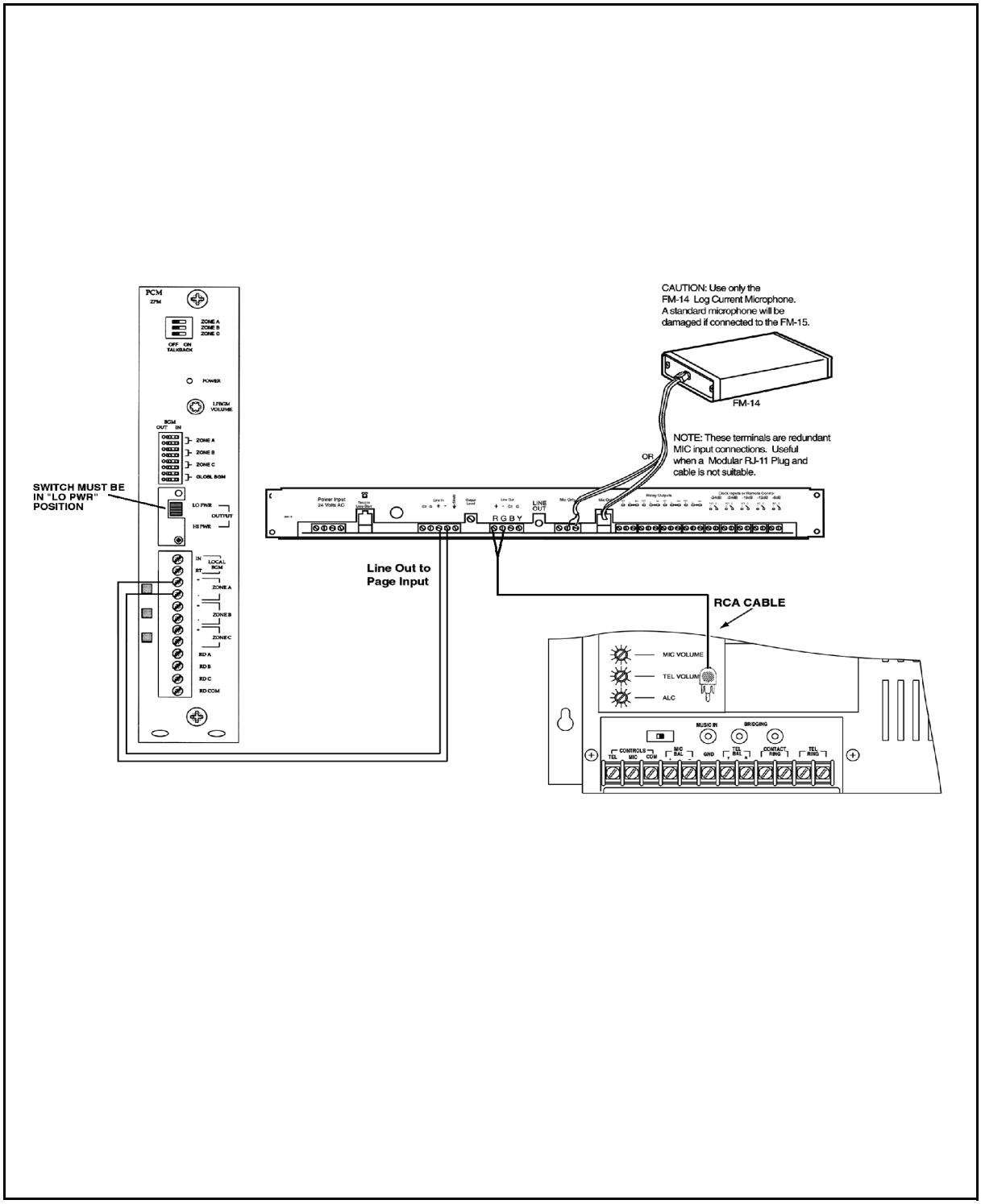

Figure 3-4. FM-15 ALC Used With A Paging Control System (LUPCMALL)